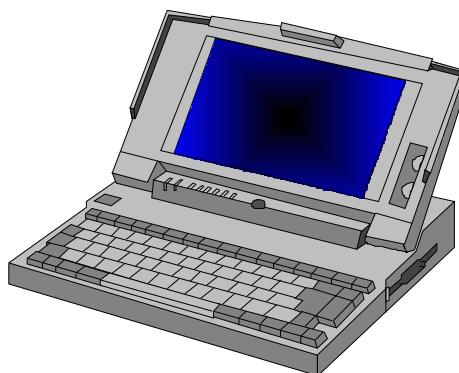


# *Beyond the Shop Floor* **From E-MFG to** **E-Business**

Harry.COM.Snodgrass





# ***E-MFG AND E-BUSINESS***

CREDIT FOR PRESENTATION GOES TO DSMC MANUFACTURING MANAGEMENT DEPARTMENT CHAIR MR. BILL MOTLEY, WHO HAD THE VISION AND FORESIGHT TO RECOGNIZE THIS REVOLUTIONARY ELEMENT OF MANUFACTURING AS IT WAS HAPPENING IN ITS EMBRYONIC STAGES. BILL DEVELOPED THE CORE ELEMENTS AND SLIDES IN THIS PRESENTATION.

I HAVE ONLY MADE ADDITIONS TO FURTHER HIGHLIGHT THIS NEW BUSINESS MODEL THAT IS ABOUT TO CHANGE OUR LIVES IN WAYS THAT WE DO NOT YET EVEN BEGIN TO UNDERSTAND.



***WWW.DSMC.DSM.MIL***

**CLICK ON INFORMATION DISSEMINATION**

**NEXT CLICK ON MANUFACTURING MANAGEMENT  
DEPARTMENT**



# *Overview*

Defense Systems Management College

MM Departmental View Of 21st Century Mfg Success

E-Mfg - When Discovered, Why, How Delivered

What We Are Teaching About E-Mfg And B2B

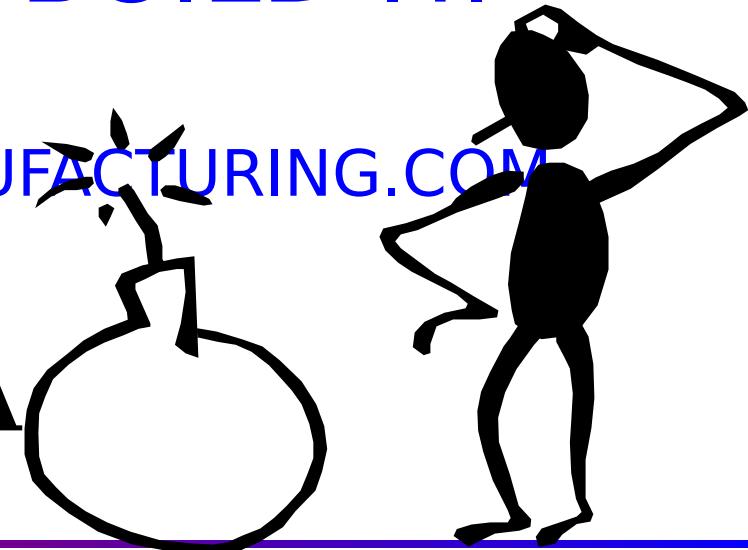
B2B Movie



“.....WITH ALL THIS DOT.COM HERE  
AND  
GET.RICH.QUICK@THERE, IT IS EASY TO  
FORGET THAT **SOMEBODY**  
**STILL HAS TO BUILD IT.”**

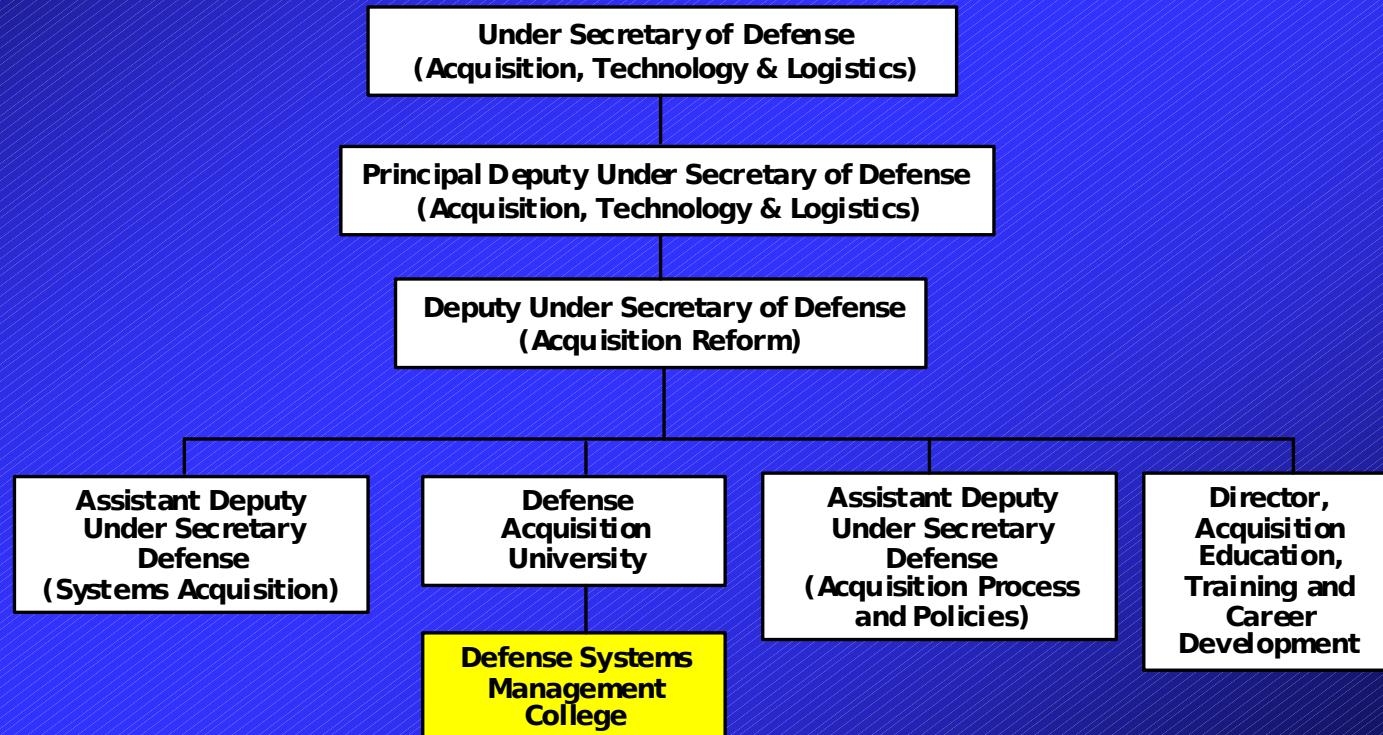
[WWWADVANCEDMANUFACTURING.COM](http://WWWADVANCEDMANUFACTURING.COM)

**BEWARE OF E-MANIA  
BUT DON'T SAY SO**

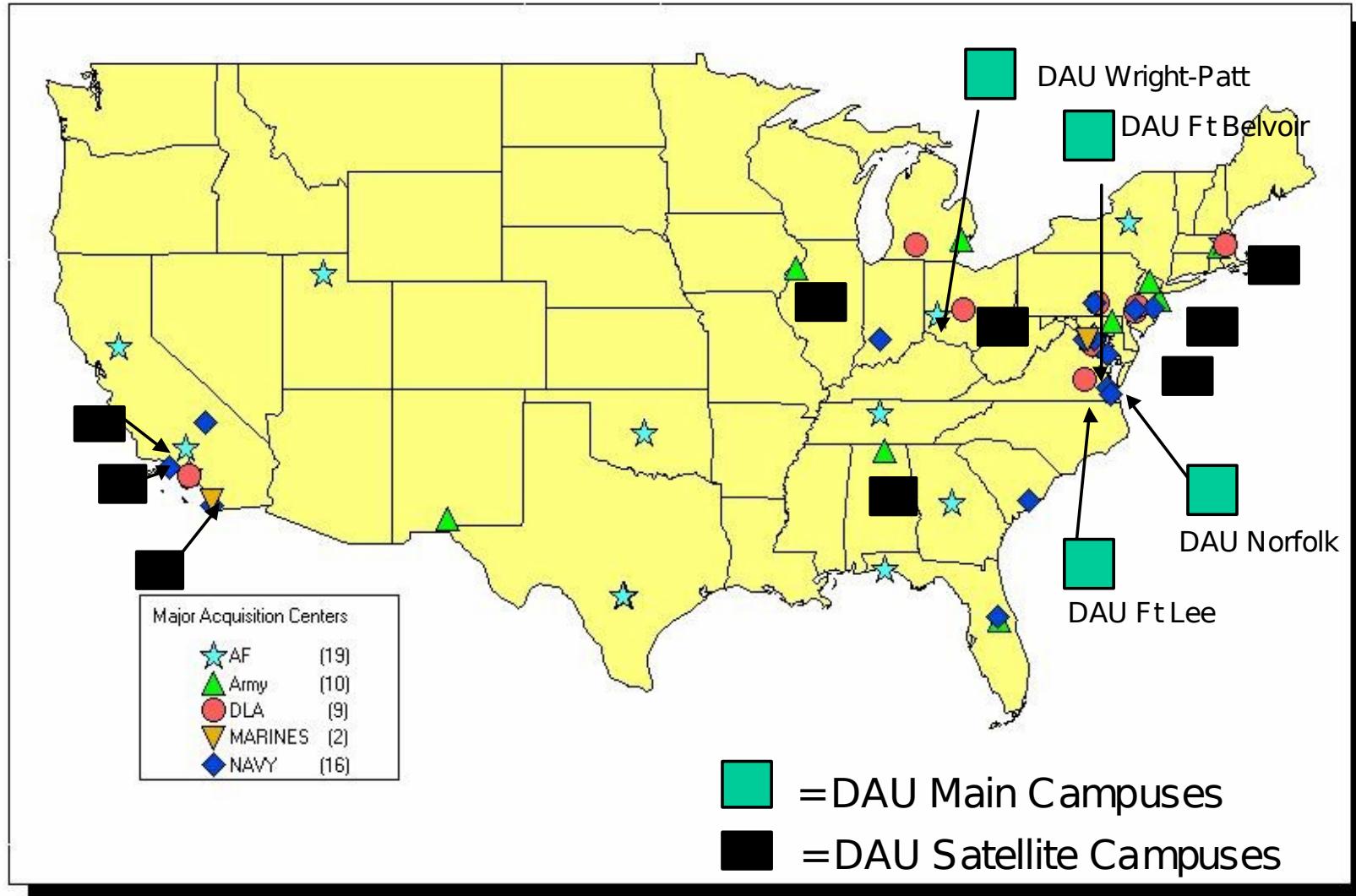


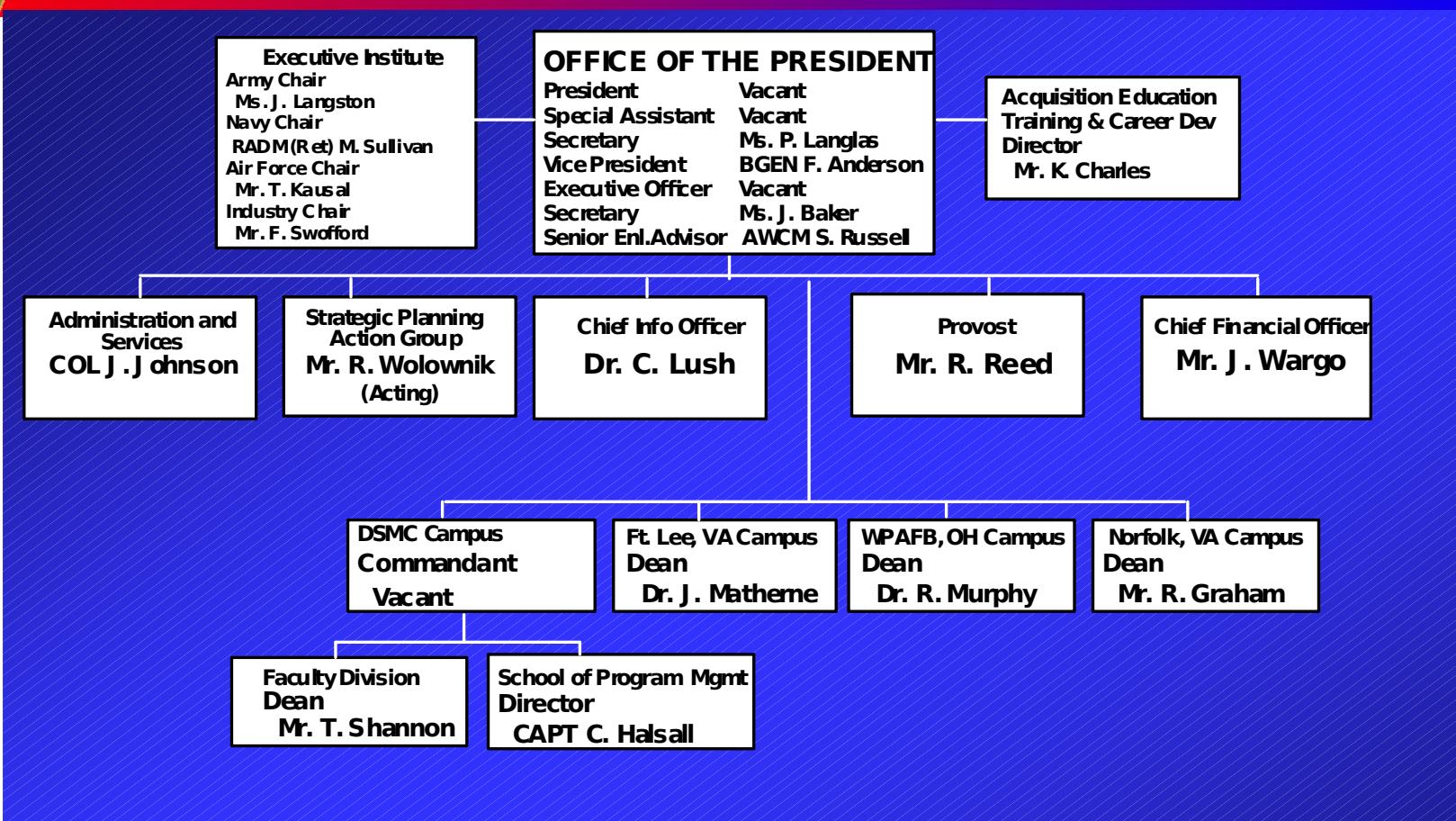


# Organizational Relationships



# Major Acquisition Workforce Centers





# DEFENSE ACQUISITION UNIVERSITY

28 Aug 00

## DAU Regional Sites

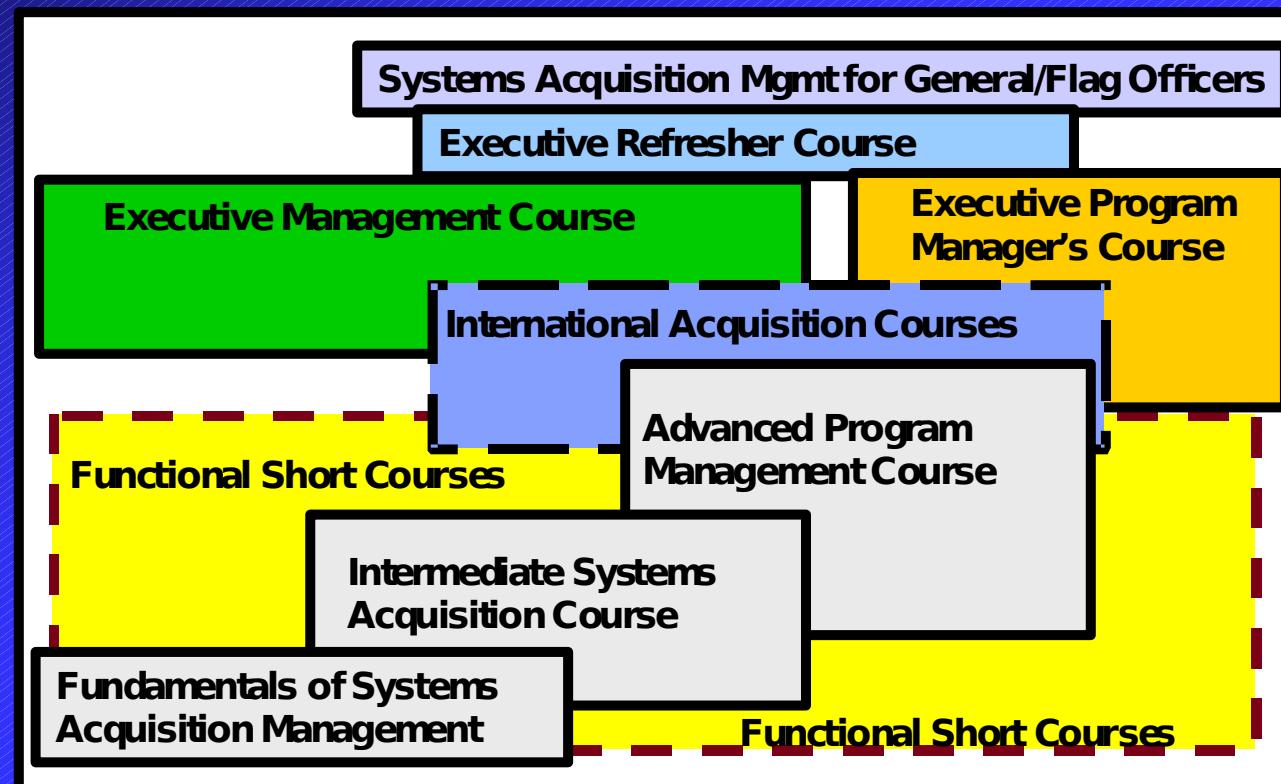
Hanscom AFB, Boston, MA  
Redstone Arsenal, Huntsville, AL  
Los Angeles AFB, CA  
Ft. Monmouth, NJ

San Diego Naval Base, CA  
Columbus, OH  
Port Hueneme, CA  
Patuxent River NAS, MD  
Rock Island Arsenal, IL

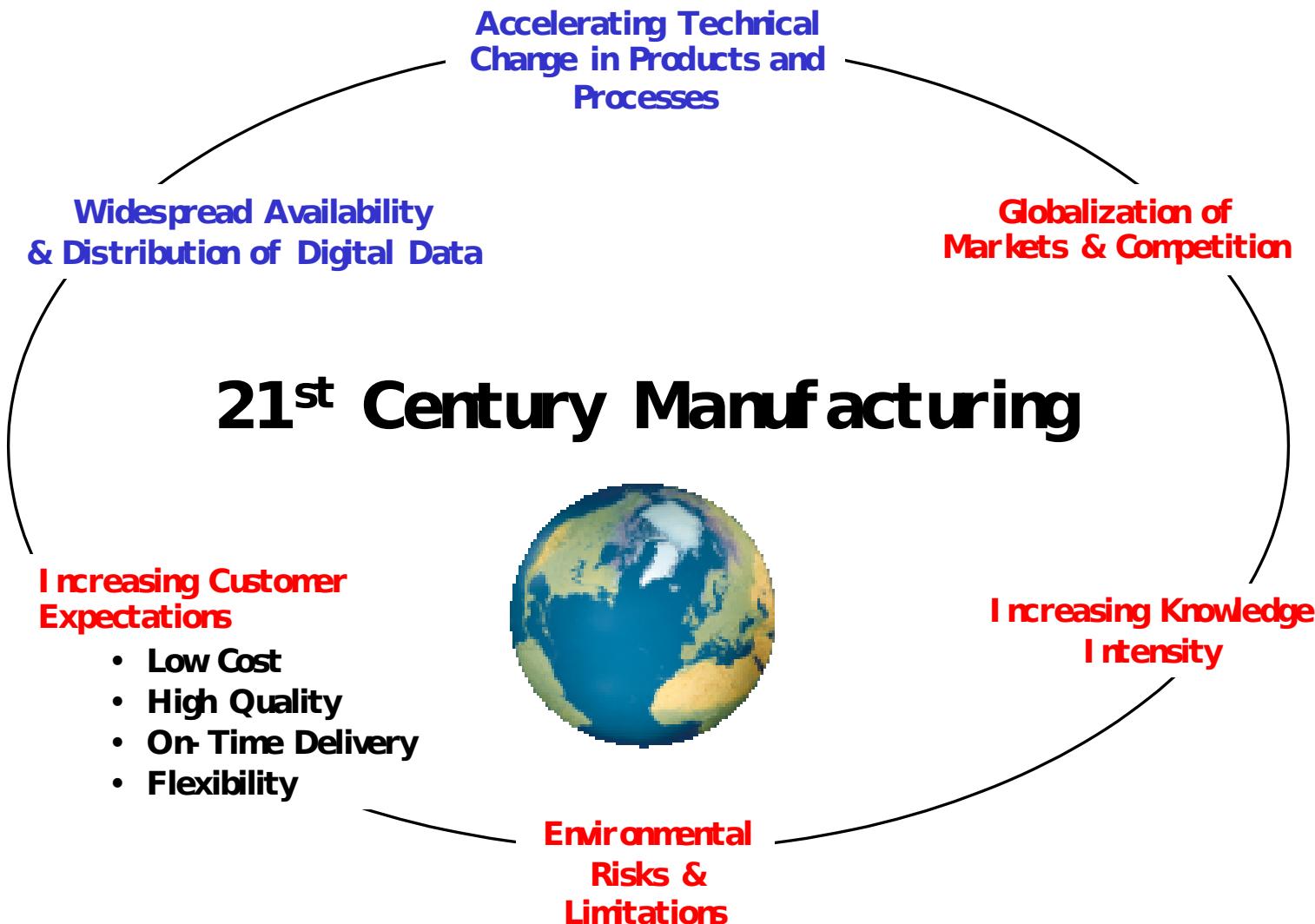
# DSMC Acquisition Courses

## Designed for the A&TWF

Junior ----- Grade/Rank ----- Senior



Low ----- Medium ----- High



CRAFT

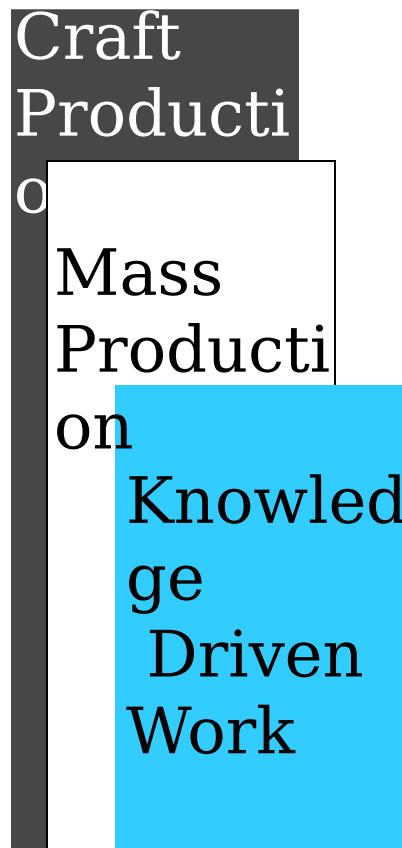
MASS

LEAN

MASS  
CUSTOMIZATION

AGILE

# *The Big Picture*

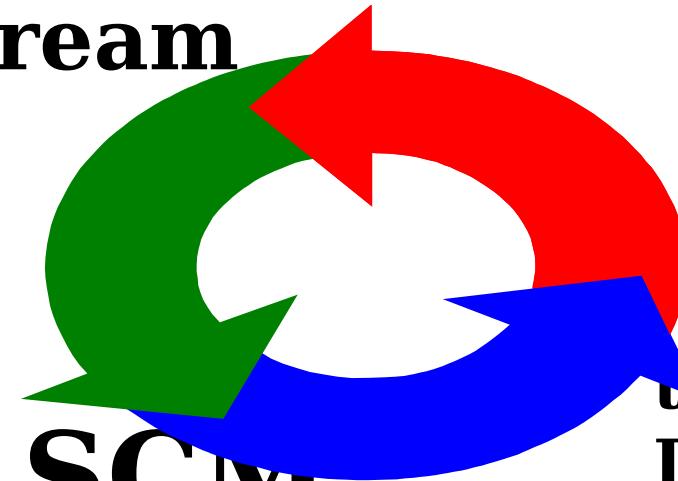


## Core Competencies

- Mastery of specialty
- Knowledge of markets
- Training of apprentices
- Control over operations
- Buffers against uncertainty
- Segmentation of work
- Mastery of knowledge-generation processes
- Customer/supplier integration

# LEAN

## zero waste, max flexibility, max value stream



all activities associated with the flow and transformation of materials and its related information from source to end user

# E-MFG

the use of the Internet and all other electronic means to manage the entire manufacturing enterprise



# **WHY ARE WE TEACHING THIS**

**SURVIVAL**

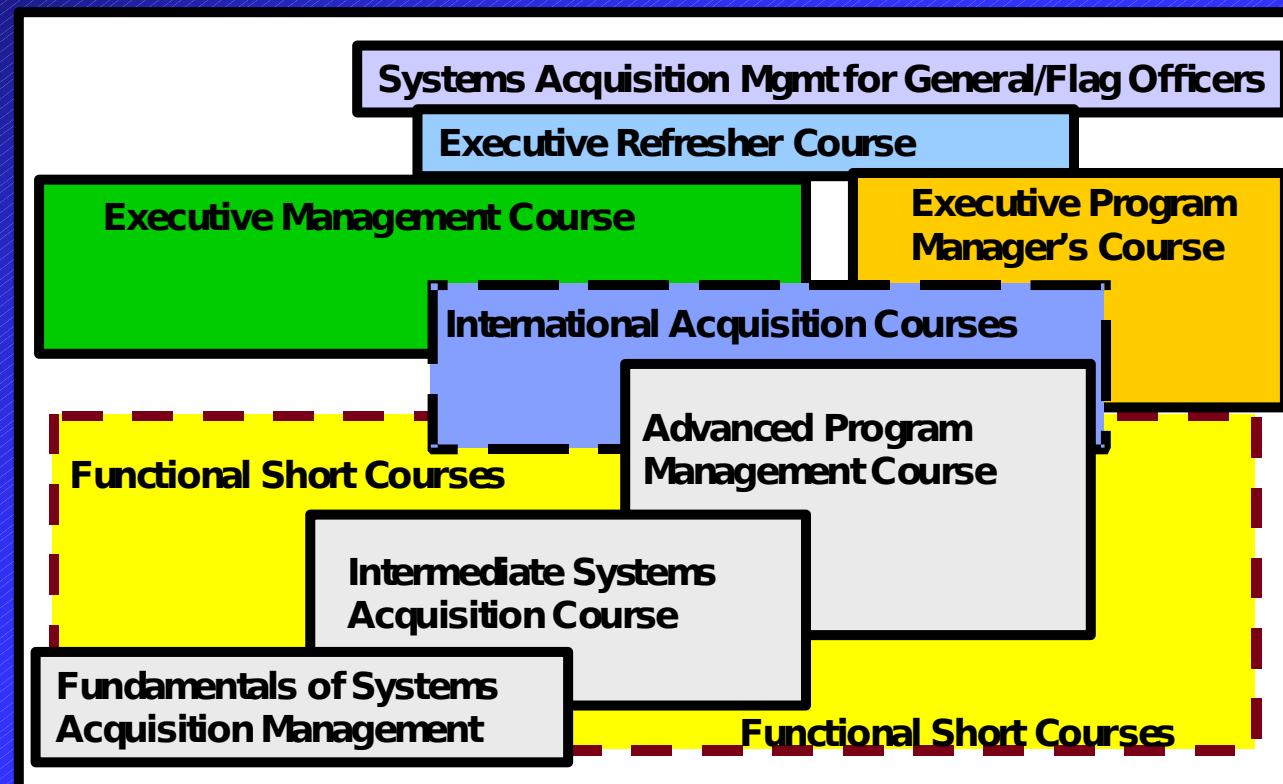
**STAY CURRENT (21st CENTURY AT&L WF)**

**ITS SLAPPING US IN THE FACE EVERYDAY**

# DSMC Acquisition Courses

## Designed for the A&TWF

Junior ----- Grade/Rank ----- Senior



Acquisition Experience

Low ----- Medium ----- High



# ***SURVIVAL***

**TO STAY IN THE HUNT WE HAD TO MARKET MM**

**ACQUISITION REFORM**

- MANUFACTURING IS THE CONTRACTORS JOB**
- OUTSOURCING**

**DISTANCE LEARNING**

# DAU Doing More With Less !

1997



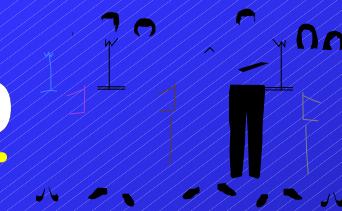
700

23%↓

540

## Faculty and Staff

2000



## Graduates



35,000

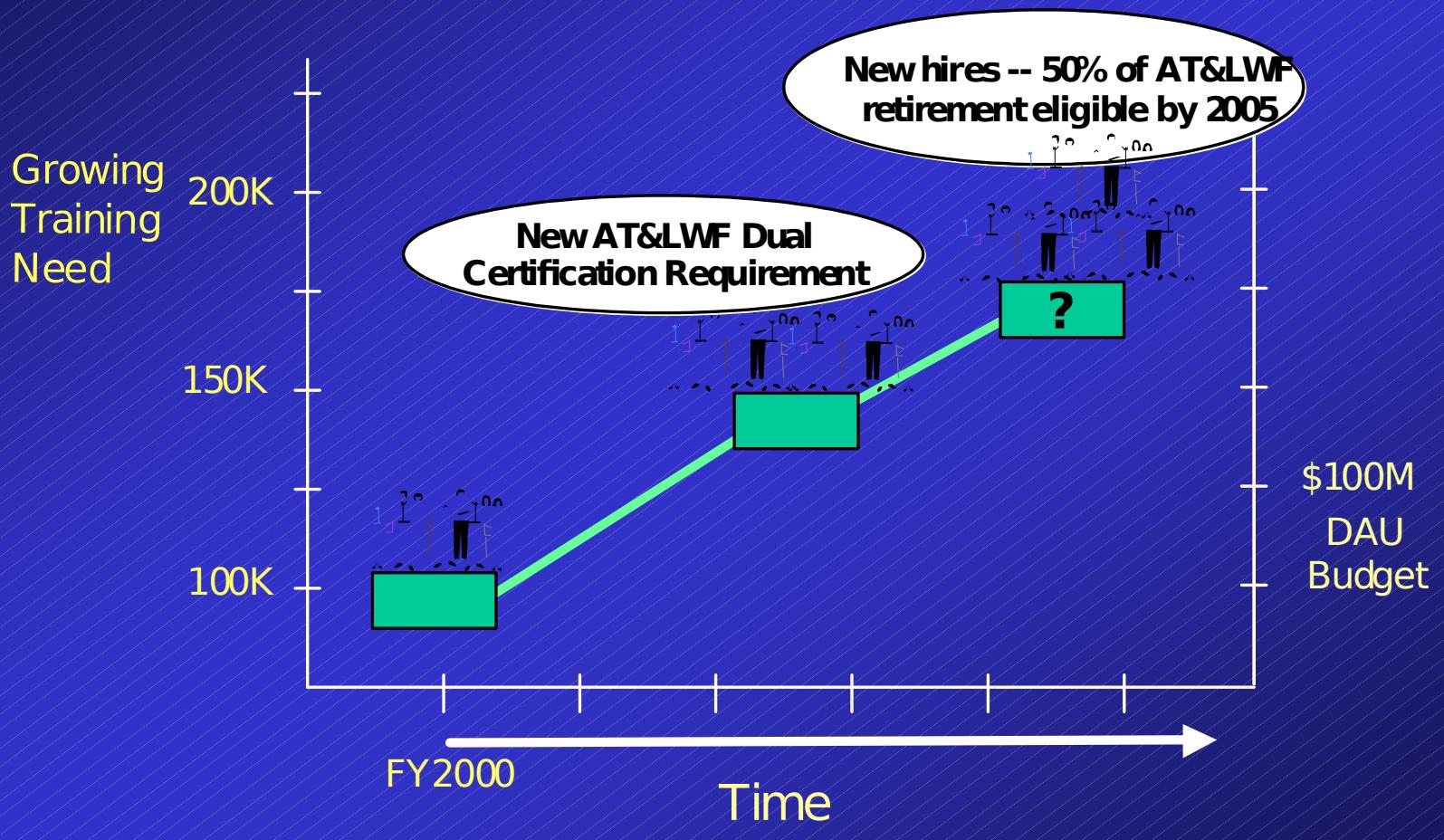
20%↑

41,000



# DAU Budget Hurdle

*- Growing Training Demand -*



# DAU Distance Learning Deployment

	Course Title	FY1998	FY1999	FY2000	FY2001
BCF 211A	Acquisition Business Management	X			
CON237	Simplified Acquisition Procedures	X			
LOG 101	Acquisition Logistics Fundamentals		X		
BCF 102	Fundamentals of Earned Value Mgt		X		
ACQ 101	Fundamentals of Systems Acq Mgt		X		
SAM 101	Basic Software Acquisition Mgt		X		
IRM 101	Basic Information Systems Acquisition		X		
PMT 250	Program Management Tools Course			O	
PQM 101	Prod and Quality Mgt Fundamentals			O	
PQM 201	Intermediate Prod and Quality Mgt			O	
LOG 203	Reliability and Maintainability			O	
TST 101	Intro to Acq Workforce Test and Eval			O	
SYS 201	Intermediate Systems Planning, RD&E			O	
SYS 211	Integrated Product/Process Development			O	
CON 101	Basics of Contracting			O	
CON 104	Principles of Contract Pricing			O	
ACQ 201	Intermediate Systems Acquisition			O	
CON 236	Value Engineering			O	

X = Deployed   O = To Be Deployed

# Change is Hard

- Successful, significant change is hard
- We must communicate throughout the entire planning and change process
- We must sustain communication in all directions
- There's no such thing as too much communication

*“We can not rely on yesterday's success. We must always be collectively and thoughtfully planning the changes we must make for tomorrow's success.”*



# Our Challenge

# Our Challenge

# Our Challenge



*“Training our workforce  
in new ways of doing business  
must be our number one priority.”*

*The Hon. Jacques Gansler USD (AT&L)*

# ***LEARNING OBJECTIVES FOR 21st CENTURY DOD MFG & QA WORKFORCE***

**Use of Electronic commerce  
and Other Information  
Technology**

**Use web-based acquisition  
systems (e.g. E-catalogs ,  
DOD E-Mall)**

**235 Know how to access web-based acquisition and work flow systems**

**236 Know and understand electronic environment (e.g. Internet, World Wide Web and Intranet Tools and Applications)**

**255 Understand DOD Electronic Commerce Policy**

**259 Know and understand marketing/selling methods and strategies**



## ***LEARNING OBJECTIVES FOR 21st CENTURY DOD MFG & QA WORKFORCE cont.***

PLA Acquisition -Integrated  
Digital Environment

Leverage commercial  
technology to support  
modern business operations  
(e.g. virtual office)

300 Know and understand  
hardware, software, and  
network requirements and  
applications and interoperability

301 Know and understand  
Internet, World Wide Web, and  
Intranet tools and applications

302 Know and understand  
electronic commerce system  
relationship to existing business  
process and interrelationships



# ***PLA Acquisition -Integrated Digital Environment***

## ***Cont.***

- 303 Know, understand and be able to apply business process reengineering
- 304 Know and understand statutory/regulatory environment
- 305 Know and understand marketing/selling methods and strategies
- 306 Know and understand performance metrics
- 307 Know and understand enterprise resource planning concepts and solutions
- 308 Know and understand commercial electronic commerce processes
- 309 Develop affordable requirements document for establishing software/hardware architecture for Integrated Digital Environment

\



# ***FACE SLAPS***

THE JOURNALS

THE MEDIA

EVERYDAY LIFE EXPERIENCES (E-MAILS)



## ***Manufacturing News***

E-Commerce Combines With Supply Chain Management To Create New Industrial Order October 13, 2000 Volume 7, No. 18

Auto Industry Trade Exchange Grows In Size And Scope September, 29, 2000 Vol. 7, No. 17

Electricity Demand Will Soon Go Through The Roof; Supply Is Not Keeping Pace September, 29, 2000 Vol. 7, No. 17

The Internet Presents Companies And Society With A Tangled Web Of Difficult Cultural Political Challenges June, 21, 1999 Vol. 6, No. 12

The Internet Is Quickly Transforming Every Aspect of Manufacturing March, 19, 1999 Vol. 6, No. 6

U.S. Government Has No Idea of What's Happening In The Digital Economy June, 21, 1999 Vol. 6, No. 12



# ***E-Commerce Combines With Supply Chain Management To Create New Industrial Order October 13, 2000 Volume 7, No. 18***

Morris Cohen from Pennsylvania Wharton School

- Supply chains optimized to the point where industry can run without inventory
- First time in over a century a new industrial structure beginning to emerge due to impact of e-commerce on supply chains
- Transition will be complete in three to four years
- Companies who capitalize on the changes will become the dominant players
- 1870 to 1917 Continuous process machinery enabled production of high volume of standardized products coupled with railroads and telegraph

# ***Traditional Business Model Will Be Turned Upside Down***



Traditional Approach: “ The Product is King” Best product to largest Customer base



Internet Approach: “ The Customer is King”

Right product to each Customer

## **TOYOTA SURROUNDS ITS CUSTOMERS WITH GOODS AND SERVICES**

DEVELOPING DEEPER RELATIONSHIP WITH ITS CUSTOMERS

OFFERING FINANCIAL SERVICES, INSURANCE, CELLULAR  
TELEPHONES, CREDIT CARDS AND CONSUMER PRODUCTS

ENABLES THEM TO STAY ON TOP OF CONSUMER PREFERENCES  
BY MONITORING WHAT WE BUY, HOW, WHEN, ETC

SUPPLY STRATEGY FINE-TUNED GIVES BETTER VIEW OF  
CONSUMER BEHAVIOR

TOYOTA CREDIT CARD LAUNCH IN 2001

# ***Customer is King***

Intellectual property and customer relations move to forefront

# ***What does a customer want***

Affordable

Mission Success

Delivery on schedule

Positive experience

Tools and resources to do the best job possible

Impact on society and community

Safe high quality product

Perceived value

Customer wants to be listened to

# ***What the customer wants***

A dependable supply change

--Available on demand

Work force skills and capabilities

-Now and in the future (not sending skills offshore)

Service---instant

-access to information and assistance with  
multiple ways to get info person, phone,  
Internet

Expertise to help me define my needs

Lowest possible transaction cost

# ***What the customer wants***

An integrated system not just separate parts

Information on what is most important and what is feasible



## ***Manufacturing News***

E-Commerce Combines With Supply Chain Management To Create New Industrial Order October 13, 2000 Volume 7, No. 18

Auto Industry Trade Exchange Grows In Size And Scope September, 29, 2000 Vol. 7, No. 17

Electricity Demand Will Soon Go Through The Roof; Supply Is Not Keeping Pace September, 29, 2000 Vol. 7, No. 17

The Internet Presents Companies And Society With A Tangled Web Of Difficult Cultural Political Challenges June, 21, 1999 Vol. 6, No. 12

The Internet Is Quickly Transforming Every Aspect of Manufacturing March, 19, 1999 Vol. 6, No. 6

U.S. Government Has No Idea of What's Happening In The Digital Economy June, 21, 1999 Vol. 6, No. 12



# ***Electricity Demand Will Soon Go Through The Roof; Supply Is Not Keeping Pace***

**September, 29, 2000 Vol. 7, No. 17**

**“GROWTH OF THE INTERNET IS SUCKING THE  
LIFELOOD OUT OF DECADES, OLD POWER GRIDS  
ALMOST TO THE POINT OF COLLAPSE”**

**PC'S AND PERIPHERAL DEVICES HOOKED TO MASSIVE  
SERVER FARMS ACCOUNT FOR 13-15% OF ALL  
ELECTRICITY USAGE**

**GROWING TO 25% TO 35% BY 2010**

**POLITICAL ISSUE (NOT IN MY BACKYARD)**



## ***Manufacturing News***

E-Commerce Combines With Supply Chain Management To Create New Industrial Order October 13, 2000 Volume 7, No. 18

Auto Industry Trade Exchange Grows In Size And Scope September, 29, 2000 Vol. 7, No. 17

Electricity Demand Will Soon Go Through The Roof; Supply Is Not Keeping Pace September, 29, 2000 Vol. 7, No. 17

The Internet Presents Companies And Society With A Tangled Web Of Difficult Cultural Political Challenges June, 21, 1999 Vol. 6, No. 12

The Internet Is Quickly Transforming Every Aspect of Manufacturing March, 19, 1999 Vol. 6, No. 6

U.S. Government Has No Idea of What's Happening In The Digital Economy June, 21, 1999 Vol. 6, No. 12



# ***The Internet Is Quickly Transforming Every Aspect of Manufacturing March, 19, 1999***

## ***Vol. 6, No. 6***

ONLY THROUGH INTERNET-BASED COLLABORATION WILL COMPANIES BE ABLE TO PROFITABLY DELIVER THE MASS CUSTOMIZATION REQUIRED BY THIS NEW BREED OF CUSTOMER

ANY NON-STRATEGIC BUSINESS FUNCTION WILL BE SUBJECT TO SCRUTINY AND WILL BE SHED IF IT IS NOT CAPABLE OF GENERATING SIGNIFICANT WEALTH  
-SOLECTRON,FEDEX,UPS TAKING ON ORDER MANAGEMENT, MANUFACTURING AND DISTRIBUTION



# ***The Internet Is Quickly Transforming Every Aspect of Manufacturing March, 19, 1999***

## **Vol. 6, No. 6**

SIX SIGMA MANUFACTURING WILL BE STANDARD PRACTICE SOONER THAN WE THINK. WHEN COMPANIES HAVE SQUEEZED ALL OF THE INEFFICIENCIES OUT OF THEIR OWN SYSTEMS, THEY WILL INCREASINGLY TURN TO THEIR SUPPLY CHAINS FOR CREATING ALL FUTURE WEALTH

BY SHARING DATA WITH TRADING PARTNERS THEY IMPROVE FORECAST ACCURACY, PRODUCT DEVELOPMENT CYCLE TIMES, LINE SCHEDULE FLEXIBILITY AND ON TIME DELIVERIES



# **WHAT WE ARE TEACHING ABOUT**

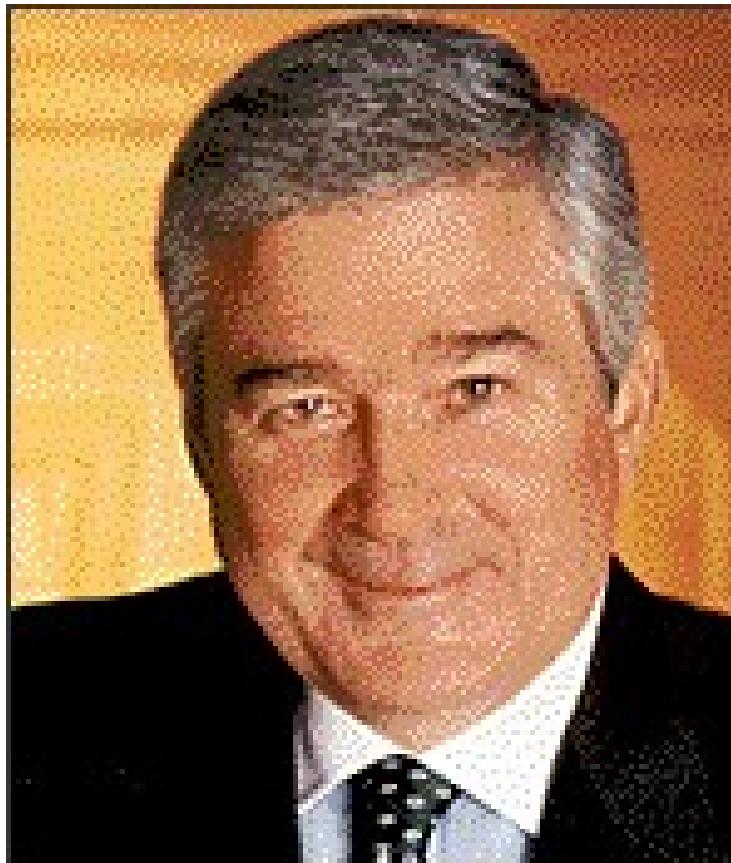
**E-MFG AND E-BUSINESS**

# ***E-Commerce Vs. E-Business***

E-Commerce transactions conducted between business partners

E-Business more than buying and selling but also servicing and collaboration with business partners

## ***IBM Lou Gerstner CEO IBM***



**“E-business is all about cycle time, speed, globalization, enhanced productivity, reaching new customers and sharing knowledge across institutions for competitive advantage”**

## ***Chairman and CEO IBM Lou Gerstner***

"Certainly the Net is a powerful medium for communication. But even more important, it is a vocational medium -- a place where real work gets done, real competitive advantage is gained, and real growth is generated.

That's because the Net has emerged as a powerful means for parties of every type to conduct transactions of every type: transactions among employees inside an enterprise; among trading partners in a supply chain; and networked transactions that transform the way educators teach students, physicians treat patients, and the way governments deliver services to citizens.

This is what we call 'e-business'. It's a term we coined to describe all of the ways individuals and institutions will derive value from the Net... as well as our strategic direction in the emerging networked economy."

# ***CEO Toyota Motor North America Toskiaki Taguchi***



**“We need to be more like Cisco”**

**They use new technology to get information quickly, identify the countermeasure quickly, and then fix it quickly. Typically, we wait too long before we take action. And then spend too much time fixing the problem”**

OCTOBER U-M MANAGEMENT BRIEFING SEMINAR

# ***Quickness and Collaboration***

Toyota uses Cisco approach to solving weather stripping problem on the Toyota Avalon

Instituted a Web Based system to streamline communication with North American parts and material suppliers

Saved Time and Money

Every 55 seconds a new car comes off TMMK production line

## ***A Look Inside The World's Most Revered Manufacturing System***

Q: Is there a way to predict how the Toyota Production system will evolve over the next decade?

“The basic elements of the system are somewhat timeless. That is dangerous to say because nothing is timeless. The system evolves. But the thing that is really going to be a big change for us is to learn how to use the power of computers, the Internet and Intranets in our business.”

Ken Kreafl VP Quality Toyota Georgetown, KY



## ***GM CHAIRMAN OF THE BOARD JOHN SMITH***

**“LET ME TELL YOU WHAT I THINK THE NEW ECONOMY MEANS. IT MEANS IN A COUPLE OF YEARS YOU WILL BE NEW ECONOMY.... OR YOU WILL BE DEAD. ITS AS SIMPLE AS THAT. MAKE NO MISTAKE, THE OLD ECONOMIC ORDER IS COLLAPSING”**

**“WHAT THE ASSEMBLY LINE WAS TO LAST CENTURY’S AUTO INDUSTRY THE INTERNET WILL BE TO THIS CENTURY’S AUTO INDUSTRY. ITS THAT BIG”**

Speaking to Detroit Economic Club in mid SEPT



## ***GE's JACK WELCH ON WHAT DOTCOMS DON'T HAVE***

“WE ALREADY HAVE THE DIFFICULT PART, THE STUFF THAT  
STARTUPS ARE LOOKING FOR  
-WORLD CLASS PRODUCTS AND TECHNOLOGY,  
CENTURY OLD BRAND IDENTITY AND REPUTATION”

A WEALTH OF PRODUCTS TO SELL

LEGIONS OF DEVOTED CUSTOMERS

ABILITY TO DELIVER QUALITY PRODUCTS ON TIME

## ***SINGLE-MOST IMPORTANT ASSET FOR BUSINESS IN E-ECONOMY IS A STRONG BRAND***

**IN E-COMMERCE ENVIRONMENT CUSTOMERS LOSE ABILITY  
TO TOUCH AND FEEL PRODUCT**

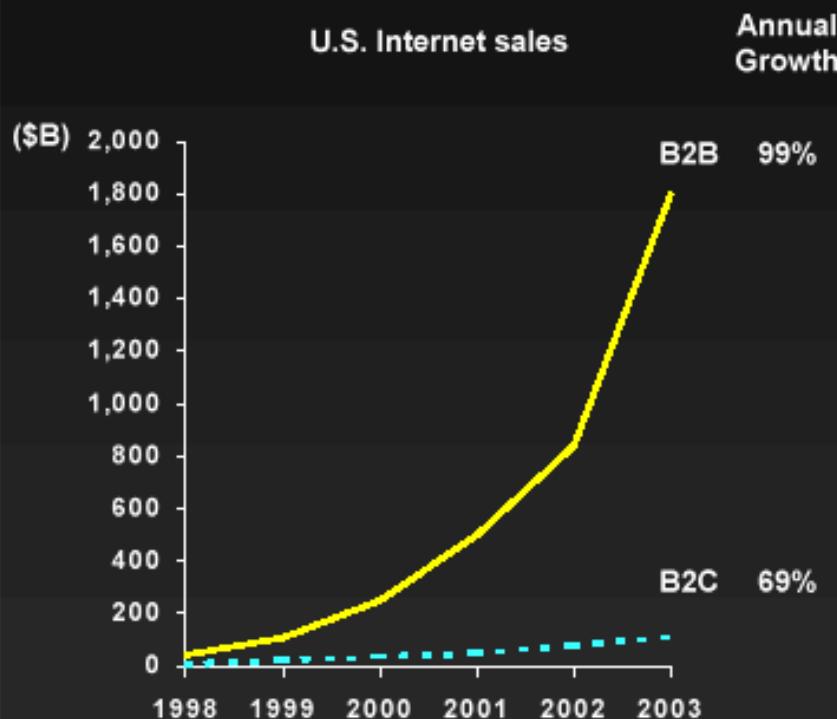
**CUSTOMERS LOSE ABILITY TO INTERACT FACE-TOFACE  
WITH COMPANY REPRESENTATIVES**

**BUYERS RESORT TO BRANDS THEY CAN TRUST**

**NEW E-COMMERCE VENTURES FACE THE CHALLENGE OF  
HAVING TO SCALE THEIR BRAND AWARENESS**

# B2B Activity Is Exploding And Delivering Tremendous Results

B2B e-business projected to grow from ~ \$40B to ~ \$1.8T by 2003



Source: Forrester 1998

Promise of Online Tools: Reducing process costs, product costs, and time to market

Companies on leading edge are getting results

- Cisco: \$450M in annual savings
- Boeing: product development cycle reduced by 50%
- GE Lighting: materials cost down by 5-20%
- Visa: 50% reduction in P.O. processing time and costs

Overall, businesses are just scratching the surface of B2B potential

- *"A year ago, there were around ten online business exchanges. Now there are 300-500; and the total is forecast to rise quickly to several thousand"* Economist (7/24/99)

## ***E -Economy Vs Industrial Economy***

***Crumbled Fundamental Economic Assumptions***  
***Current Projection is E-Economy will overtake  
Industrial Economy by 2003***

No longer are interaction and collaboration cost high

No longer do physical assets play the central role in value propositions

No longer does size ultimately limit returns

No longer is access to information restricted and expensive

No longer does it take several years and deep pockets to build a business with global presence

# **UNLEASHING E-MFG**

**MOORE'S LAW:** computing power doubles every 18 months for a given cost

**METCALFE'S LAW:** the value of a network grows exponentially as more people become connected to it

**COASE's THEORY:** the size of an organization varies directly with the number and amount of its transaction costs

# **WHAT'S THE RESULT OF MOORE, METCALFE AND COASE?**

A MARKET **SPACE** WITH MORE, SMALLER FIRMS WITH FEW OR NO TEMPORAL OR SPATIAL LIMITATIONS.

# *E-MFG Today*

MORE OUTSOURCING TO MORE SOURCES

ASSEMBLY BECOMING A COMMODITY

OEMs BECOMING SUPPLY CHAIN MGRs

SCM BECOMING A STRATEGIC FACTOR

SCs MUST FUNCTION LIKE A SINGLE ENTITY

ELECTRONICS LEADS ALL OTHER MFG SECTORS

IN THE OUTSOURCING OF FAB AND ASSY

INCREASING USE OF E-TRADING EXCHANGES

# **CISCO SYSTEMS**

CISCO concentrates on engineering and its customer base

Do what needs to be done and let others do the rest

Has its supply chain add the physical value

Does what it does the best and offloads the rest



# *Five Ways E-Business Is Saving Money*

Product Design

E-Procurement

Inventory Tracking

Inventory Reduction

Scheduling and Logistics Improvement

# ***Product Design***

Product and Process virtual design teams at different locations utilizing the internet as a communication collaboration tool to share knowledge

Yielding cheaper, better, and quicker decisions in era of time base competition

Tighter control of engineering changes and configuration management easily extended to supply chain



# *Product Design*

Rent your CAD Software from Alibre (\$30-100 Month)

Connect teams of engineers in 3D solid modeling  
interactive web environment

Open STANDARD FOR THE EXCHANGE OF PRODUCT  
PRODUCT MODEL DATA (STEP) native data format plus  
others

Data repositories provide security and notification



# ***E-Procurement***

Purchase Order releases communicated over Internet

Online vendor catalogs

RFQ and Bid packaging

Online Auctions

# *E-Catalog Advantages*

Paperless - Paper trails become electronic

Cost less

Updates done in real time

Multimedia delivery to include voice and video clips

Can be custom-made

Orders taken 24 X 7



# *Catalogs*

Venders

Catalogs Developed By Buyers

Catalogs Developed by Intermediaries



# ***Grainger.Com Corp Philosophy***

Our goal is to be the leading electronic community serving industrial, commercial, institutional, and contractor customers.

We feel safe conducting business over the Internet, and we want you to feel safe, too.

# *Vender Catalogs*

W.W. Grainger 4.5 B in Annual Sales

- Leading North American B2B supplier of of Maintenance, Repair, and Operating (MRO) supplies

Moved 220K products to online

- includes pricing, product availability, custom tailored to reflect discounts to each customer, 24 x 7 availability



# *Intermediary Catalogs*

ProcureNet integrates 30 seller sites with more than 100K parts for the electronics industry

Boeing Aircraft maintains an intermediary site

- 500 customers place orders on the Boeing Part Analysis and Requirements website
- Many parts drop-shipped from suppliers

GM used CommerceOne to develop its site



# ***GM TradeXchange***

GM TradeXchange is the online e-marketplace for the automotive industry, including General Motors, its suppliers and other businesses, allowing them to trade goods and services with speed and efficiency via the Internet. Based on the Commerce One MarketSite Portal solution, GM TradeXchange went live with the automotive industry's first-ever Internet-based business-to-business auction in December 1999. Today's announcement marked the third successful auction on GM TradeXchange, and its first bid-quote transaction. In addition to online auctions, online catalog orders totaling more than \$2 million have been transacted through GM TradeXchange to date, with 200,000 catalog items currently available through five participating companies. GM spends approximately \$87 billion annually with its more than 30,000 suppliers worldwide. GM TradeXchange is expected to process transactions totaling \$50 billion by the end of the year.

# ***E-Auctions***

Sites maintained by sellers, buyers, and intermediaries

GM buys 5M tons of steel a year at great prices and sells their excesses to suppliers

United Technologies Corporation used FreeMarkets to buy 24M of circuit boards -- saved 6 million

GE auctions held daily at all manufacturing units with approved suppliers for three hours

- Suppliers bidding against each other for GE's 5B in production and non-production supplies



# ***United Technologies Corporation E-Auction***

Needed 12 lots of circuit boards (24M estimated cost)

FreeMarkets evaluated 1000 potential suppliers  
50 invited to bid on the twelve lots of boards

1st Lot bid of 2.25 million at 8.00 AM  
By 8:45 the 42nd bidder got the lot for 1.1 million

At the end the 12 lots sold for a total of 18 million  
35% savings

# *Inventory tracking*

FedEx InterNetShip 1996

- Within 18 months 75k customers
- Today customer can compute shipping cost, print labels, adjust invoices, and track package status

Bar-coding, radio frequency, and electronic communications technology allows tracking inventory in transit, on the shop floor, or in the warehouse

-Ford is hiring UPS to track 4M vehicles a year as they travel from the factory to dealers

# ***Pass Through Facility***

Competition with retailers demands that the e-customer get the order in a day

Selling the item on the Internet is the easy part, getting it to the customer is a lot trickier

The closer you get your product to the air cargo center the quicker your delivery time

# ***Inventory Reduction***

‘Pass-through facilities’ replace warehouses

Run by LOGISTICS vendors and not the manufacturers

Goods are quickly moved down conveyor belts in buildings designed for maneuver and loading equipment

Buildings with direct access to taxiways

Four 747's and 68 large trucks able to load and unload

# *Scheduling and Logistics Improvements*

FedEx's coordinated pick up and delivery alliance with Cisco

FedEx uses e-commerce to know where each Cisco piece is headed and when it will be ready to ship

-Orders are merged in transit and arrive JIT without ever going to warehouse

Schneider National's website leverages the motor carrier industry to match up shippers and truckers

# ***EXCHANGES WILL ENTER A GOLDEN AGE***

“This success will not belong to those who were ‘first to market’

as initially believed. Rather, success will be driven by the ability of various participants to adopt new business models”

## **THE FUTURE OF B2B - A NEW GENESIS**

Deloitte Consulting

[www.dc.com/deloitte\\_research/featured/e-views/index.asp](http://www.dc.com/deloitte_research/featured/e-views/index.asp)

# EXOSTAR



# ***Global Reach***

Exostar's initial trading partners--its originators-- are among the largest and most significant players in the aerospace and defense business. BAE SYSTEMS plc, The Boeing Company, Lockheed Martin Corporation and Raytheon Company represent instant critical mass and world-wide reach ... along with a \$71 billion annual procurement budget. In the near future, look for more industry leaders to join

# *Why Choose Exostar?*

Exostar is one of the aerospace and defense industry's best opportunities to reduce procurement costs, streamline supply chains, and reach new markets. That is because it is independent and neutral--an e-marketplace designed to make buyers and sellers more profitable by helping them provide and procure materials, parts, technical documents, information and services.

## ***Exostar's Ease of Use....***

Open architecture and standards-based integration capabilities allow participants to quickly join the exchange, leverage common ways to do business, and connect with a global marketplace of suppliers and customers ... all with secure and fully protective protocol and safeguards.

The entire  
industry is about  
to accelerate.  
Welcome  
to the world of  
COVISINT.



Introducing a faster, more efficient way to communicate, collaborate, buy, sell, trade and share information-business to business. Buyer to supplier. Up and down the supplier chain. Through product development. From any company. Anywhere. Anytime. In real time. Being developed for the automotive world. DaimlerChrysler, Ford Motor Company, General Motors, Nissan, and Renault are moving the world's largest industry to the fast lane. Stay tuned. And buckle your seat belt.

[www.covisint.com](http://www.covisint.com)

A global business exchange

## COVISINT - (KO-vis-int)

- Embodies The e-Business Vision
  - Co - Communicate, Collaborate, Connect
  - Vis - Visibility, Vision
  - Int - Integrate, International

# Automotive Industry Ready For Change

## The way things are done today

42 month vehicle development process

60-65 day order-to-delivery

Low P/E ratios and market capitalization

Low return on assets

High Costs

Excess inventory

Highly manual processes

## The vision for the future

12-18 month vehicle development cycles

Compressed order-to-delivery

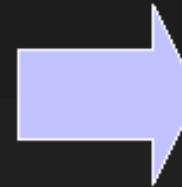
Increased shareholder valuations

Greater asset efficiency

Higher profitability

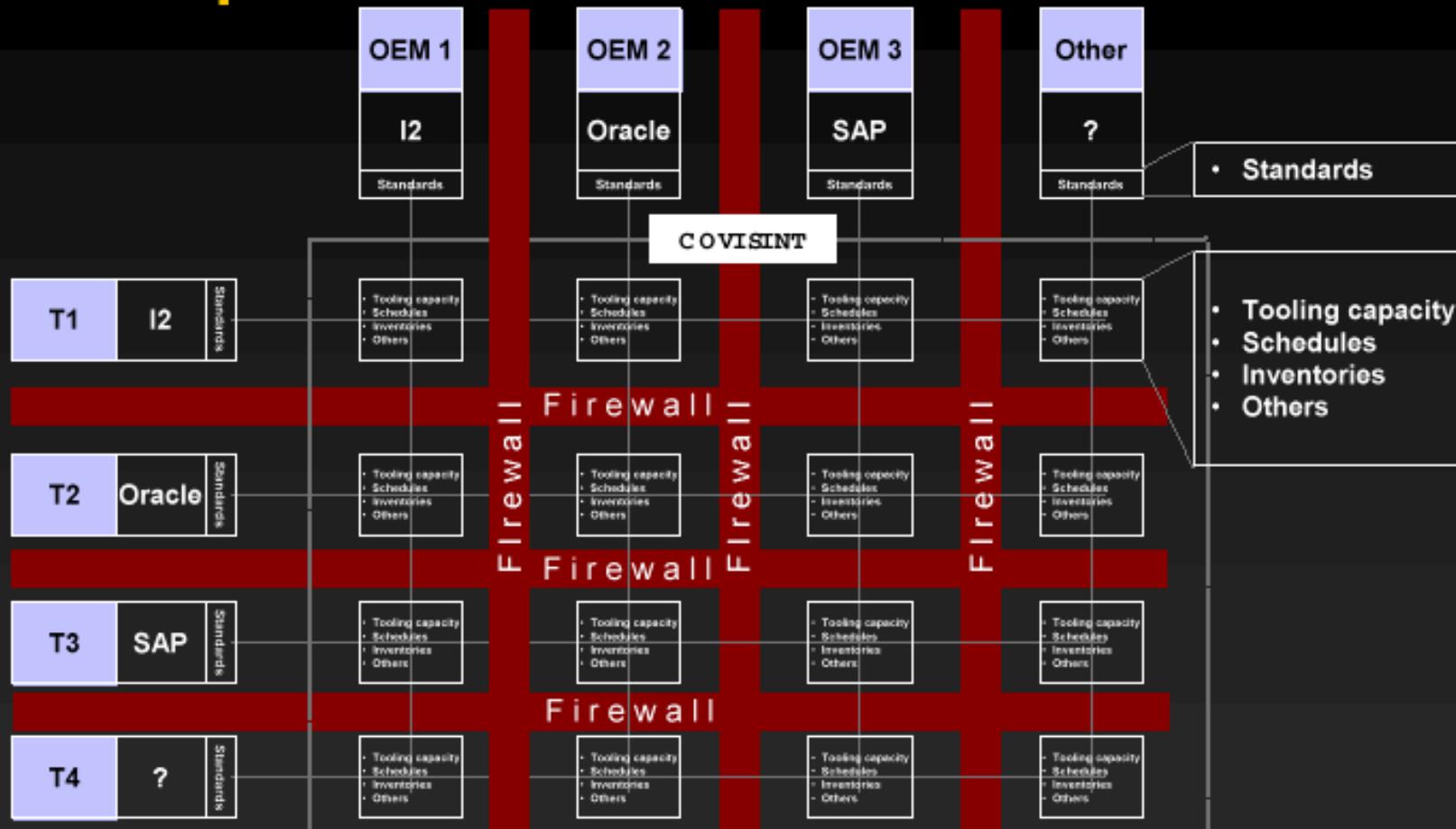
More integrated supply chain planning

Electronic automation



Opportunity for improvements through greater individual supply chain integration

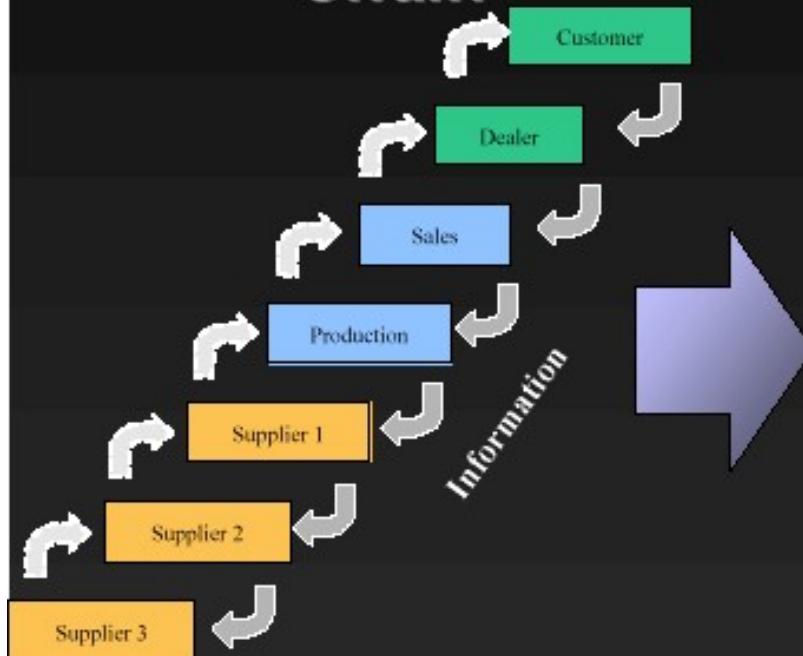
# By Using Internet Technology We Expect Benefits To Reach All Tiers



*COVISINT plans to provide visibility and collaboration possibilities to each individual's supply chain via 'best-of-breed' internet technology*

# COVISINT Is Expected to Redefine the Auto Supply Chain

## *Today's Supply Chain*



## *Tomorrow's Supply Community*



*Capitalizing on emerging technologies (internet) and business models (exchanges), tomorrow's individual supply chains will be more efficient due to increased connectivity and visibility*



# ***THE E-MFG VISION***

SEAMLESS INTEGRATION OF SHOP FLOOR INTO THE CORPORATE  
ERP/APS

DIGITAL MGT OF MATERIALS, PROCESSES, PRODUCTS  
AND INFORMATION

VIRTUAL, DIGITAL PARTNERSHIPS VIA THE WEB

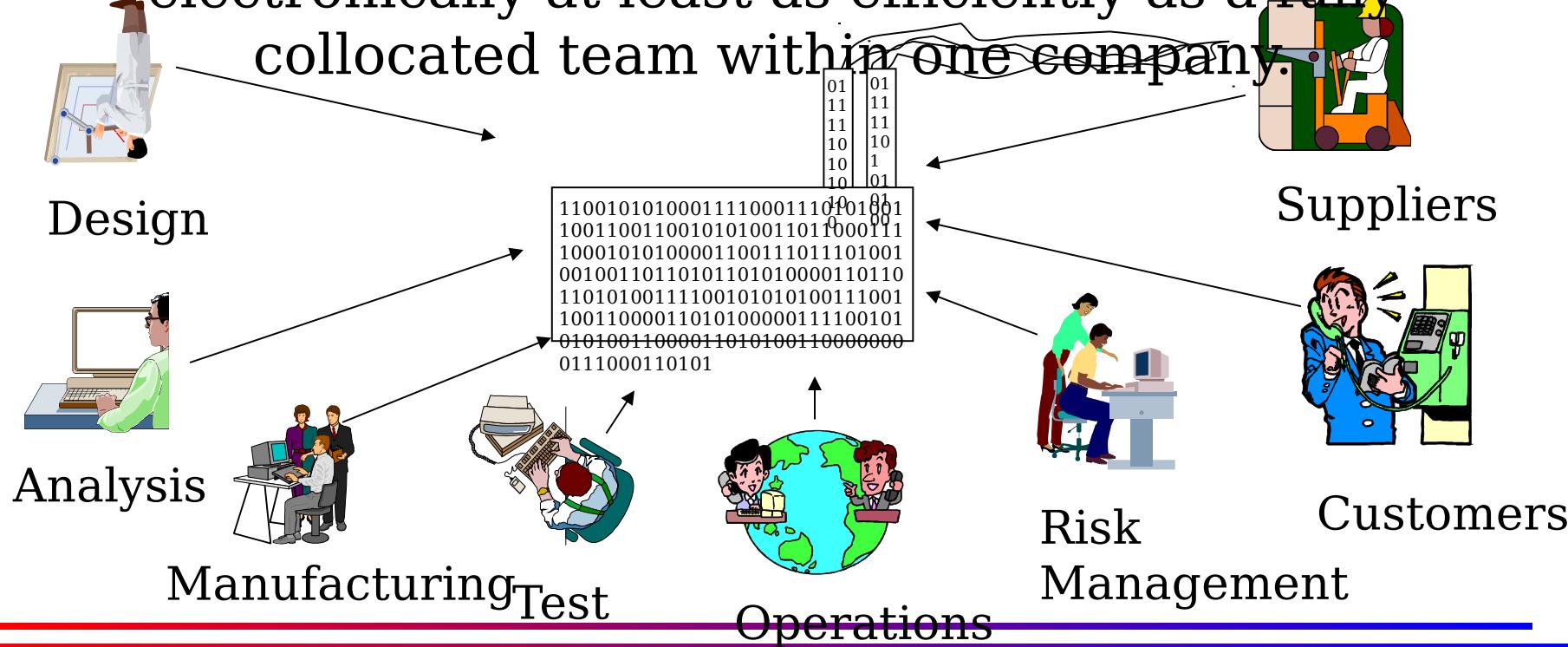
ERP TO ERP

DIRECT TRANSFER OF CUSTOMER DETAILS TO  
SUPPLIER'S SHOP FLOOR

DIGITAL REAL-TIME VIZ OF PARTNERS & SUPPLIERS

# Virtual Enterprise

Virtually collocated teams of companies and personnel representing the best world-wide capabilities available at the time, independent of organizational affiliation, working together electronically at least as efficiently as a fully collocated team within one company.



# ***VIRTUAL ENTERPRISES***

## Old Paradigm

ENTERPRISE AS ORGANIZATION

MARKETPLACE

VERTICAL OR HORIZONTAL  
INTEGRATION

ARM'S LENGTH RELATIONSHIPS WITH  
SUPPLY CHAIN

SUPPLY CHAIN AS NECESSARY  
EVIL

## New Paradigm

ENTERPRISE AS ORGANISM

GLOBAL MARKET**SPACE**, 24x7

RECOMBINANT INTEGRATION

VARIED

SC AS COMPETITIVE WEAPON



# **CONTINUING E-MFG TECHNOLOGIES**

## **ENTERPRISE RESOURCE PLANNING**

ALL MAJOR BUSINESS PROCESSES  
MANAGED BY A SINGLE SW SUITE IN REAL-  
TIME  
COMING SOON TO AN AGENCY NEAR YOU  
A MUST HAVE, BUT A NEAR 100% HISTORY  
OF BEING LATE, OVER BUDGET AND  
DIFFICULT IMPLEMENTATION

## **XML -EXTENSIBLE MARKUP LANGUAGE**

A META LANGUAGE - PROVIDES DATA  
ABOUT DATA; FORMAT AND CONTENT  
PROVIDES INCREASED PLATFORM  
INDEPENDENCE  
WILL ALLOW BETTER, EASIER DATA  
EXCHANGE, BETTER SEARCHES AND  
MORE FLEXIBLE WEB APPLICATIONS

# Technology Path to the IE

